

## Analysis of Labour Supply & Use in Small Scale Farming In Ikwuano/Umuahia L.G.A. of Abia State, Nigeria

Jonah, Ikoku John

Department of Economics, Achiever's University, Owo, Nigeria  
E-mail address: pjikoku@yahoo.com

**ABSTRACT:** This study examines the supply and utilisation of labour resources among farmers in Ikwuano-Umuahia Local Government Area of Abia State. A total of 175 small scale farmers were randomly selected and interviewed with the use of structured questionnaires in five out of the nine autonomous communities that make up the local government area. The data collected were analysed and the results showed that average family labour force of 200 man days was not enough to cultivate the average farm size of 2.158 hectares. Labour shortage exists. Farmers are making up for this shortage by using communal and hired labour. Each farmer uses on the average 48.0 mandays of communal labour and 222.24 mandays of hired labour in order to cultivate the average farm size. Shortage of farm labour was found to be due to increasing rate of migration of rural labour force to the urban centres, non-farm employment, non-availability of saving technologies e.g. fertilizers etc.. A labour demand function was estimated against the following independent variables: Wage rate, farm size ,cost of capital, cost of other inputs, family labour in mandays, communal labour and hired labour in mandays. The result showed that farm size, family labour, communal labour and hired labour were all significant while the other independent variables though not significant, have signs which agree with economic theory. Based on the findings of the analysis, some recommendations were made namely reducing drastically the rate of migration of rural labour force by embarking on rural development projects, provision of labour saving technologies.

**Keywords :** utilisation, Labour, scarcity, wages

**Introduction :** Labour in the simplest term describes the effort of human beings. It is the work done by human beings. Labour in combination with other factors of production is utilized to produce outputs.

Labour is so important in economic activities that radical (socialist oriented) economists think it is the sole embodiment of production. Except for land(with waters) which is considered by these economists as given by nature, every other factor of production in their opinion can be expressed in terms of labour. A tractor or a bag of fertilizer, for example, can be expressed in labour units, i.e. the number of mandays (labour units) needed to produce them. Even the improvement on land can be expressed in labour units. Labour is therefore a centre-piece of all production and more so of agricultural production (Adeyeye and Dittoh,1982).Labour which was formerly abundant in relation to demand has become a serious limiting factor of production. Agriculture in Nigeria is a labour intensive industry. This is shown by the

percentage of the population currently engaged in farming. This sector alone employs over 70 percent of the total labour force. This should not be seen as an indication of under development as is commonly believed, as a reflection of the price of labour relative to capital. In any industry, where it is possible to substitute one input for another in the production process, a rational entrepreneur will prefer the cheaper input in relative to the more expensive one.

**Literature review :** According to Nwoko (1984),under family labour, we can distinguish among the following: Potential family labour, available family labour and actual family labour.

Potential family labour supply is the annual (yearly) manday equivalent of all the members of the household irrespective of their places of residence. However, some members of the household live away from home as migrants for either of the following reasons: schooling, married and set up their own family units, married and moved out of the village, ladies married to non-villagers, taking employment away from the village. When we deduct the mandays attributable to those who live away from home from the potential family labour supply we obtain the available family labour supply. So the available family labour supply is the manday equivalents of the members of the household who are resident at home. But not everyone who is resident at home works on the farm. Some who live at home are engaged extensively in non-farm activities like trading, some are school children who work only during weekends and holidays, some are too old to work on the farm. If we convert the actual time during which those who live at home are available to work on the farm into manday equivalent, then we obtain the actual family labour force. So the actual family farm labour supply is the manday equivalent of the time during which the members of the household who live at home are actually available for farm work.

In the process of economic development, the agricultural sector is assigned one of the roles of releasing surplus farm labour for industrial employment.

Arthur Lewis (1954), advanced the hypothesis that excess supply of labour should be withdrawn from agriculture into the industrial sector so as to accelerate economic growth. This growth model has limitations in that exhaustion of surplus labour may cause labour scarcity. This would result in increased labour wages and a resultant decrease in industrialist's profit. The net effect would be a retardation of the growth process.

Labour in African agriculture is assumed to have backward sloping supply curve; the supply is inversely related to the wage rate. Elliot Berg(1961) examined this assertion in the light of the changing circumstances under which the migrant farmers operate. He found that many men no longer quit jobs as soon as they satisfy their income needs following rises in wages. He also said that changing circumstances have made it difficult to predict a priori/the aggregate supply function.

Nwoko (1984) in his work on labour supply and utilization in Southern Cross River State found out that using an estimated annual mandays of 222 for adult male, it was found that the actual family labour supply to the farm could not cultivate and maintain the observed farm sizes:3.13 hectares for tree crop and 2.88 hectares of field crop. Farmers therefore resort to the use of communal and hired labour. These types of labour are mostly used for land clearing, sowing, weeding and harvesting. Each farmer according to him uses, on the average 358 mandays of communal labour and 609.6 mandays of hired labour. He also found out that non-farm employment and out migration constituted a higher drain on family farm labour force which created labour shortage and that the farmer is making up for this shortage by utilizing hired or communal labour and not both since one is a perfect substitute for the other.

## Methodology

### Background of the Study Location

Ikwuano/Umuahia is one of the seventeen local government area of Abia State. It is bounded on the East by Bende Local Government Area, on the West by Ekiti and Obioma Ngwa Local Government Areas. Its Northern neighbour is Isuikwuato/Okigwe while Cross River State shares boundary with her on the south. Farmers could be seen in large numbers in villages a bit far away from the main market. They mostly cultivate crops like cassava, yam, okro, melon, pepper, maize, banana, oil palm, cocoa, etc.

### Data Collection:

Data for the analysis were secured from a cross-sectional survey of five autonomous communities in the Local Government Area. Data were collected by interviewing farmers with structured and open ended questionnaires during each visit. The interview normally took place in the evenings and on weekends when the farmers were available.

### Types of Data Collected

Information collected include Age, Sex, Occupation, Educational level, Household size, Marital status, Farm size, type of farming system practised, labour requirements by crop enterprises, labour operation, inputs and outputs etc.

### Method of Data Analysis

Basic statistical tools were used in analysing and presenting the data. Such statistics include: percentages, frequency distribution and means, the ordinary least square (Multiple regression).

The labour demand model is specified below:

$$Y=f(x_1, x_2, x_3, x_4, x_5, x_6, x_7)$$

Where

$Y$ = Total labour used per farmer in mandays.

$X_1$ = Wage rate in naira (N).

$X_2$ = Farm size in hectares (ha)

$X_3$ = Cost of capital in naira (N)

$X_4$  = Cost of other inputs in naira (N)

$X_5$ = Family labour in mandays.

$X_6$ = Hired labour in mandays.

$X_7$ = Communal labour in mandays.

After fitting four different forms of production function namely: Linear, Cobb-Douglas, S semi-log, exponential, the linear was selected as the lead equation. The linear form is given as:

$$\begin{aligned} Y &= -0.20553 - 0.0009X_1 + 0.1526X_2 - 0.000X_3 - \\ &\quad (0.1951) \quad (0.8295) \quad (-0.3051) \\ &0.0004X_4 + 0.9997X_5 + 0.9976X_6 + 1.0001X_7. \\ &(-0.5617) \quad (259.4921)^{***} \quad (285.1792)^{***} \quad (174.9014)^{***} \\ R^2 &= 0.991. \\ R &= 0.990. \\ F &= 25590.162^{***} \quad ***=\text{significant at } 1\%. \end{aligned}$$

From the above, F value is significant at one percent(1%), family labour in mandays( $X_5$ ), hired labour in mandays( $X_6$ ), communal labour in mandays( $X_7$ ) were all significant at 1%.

The value of  $R^2$  which is equal to 0.991 means that 99.1% of the observed variations in total labour used per farmer in mandays is explained by the independent variables.

The non-significance of other independent variables namely, wage rate( $X_1$ ), farm size in ha( $X_2$ ), cost of capital( $X_3$ ), cost of other inputs( $X_4$ ) may be due to the presence of multicollinearity in the model, and because of this problem, family labour( $X_5$ ), communal labour( $X_6$ ), and hired labour( $X_7$ ) were eliminated and the remaining independent variables regressed on Y (total labour used).

The linear result of the model is shown below:

$$Y=201.814804-0.0637X_1+1.7176X_2-0.0296X_3-0.4702X_4.$$

$$(-0.4561) \quad (1.7176)^* \quad (-1.6396) \quad (-0.4702)$$

$$R^2=0.0450$$

$$R=0.0225$$

$$F=2.003^*$$

\*=Significant at 10%.

From the above result, the F value is significant at 10 percent. The  $R^2$  shows that 4.50 percent of the variation in the dependent variable is accounted for by the independent variables, which means that there are still some other factors which are yet to be taken account of.

Also from the result, the wage rate in naira( $X_1$ ) though not significant was inversely related to the dependent variable(Y).This means that as the wage rate in naira increases, the farmer employs less labour.

Land size in hectares( $X_2$ ) was found to be significant at 10 percent and positively related to the total labour used per farmer(Y) i.e. the larger the farm size, the more labour is employed.

Cost of capital in naira( $X_3$ ) was found to be negatively related to Y, which implies that the more the cost of capital i.e. interest rates on buildings, depreciation costs, the less the labour employed. Finally, the cost of other inputs( $X_4$ ),such as fertilizers, seeds, chemicals etc, though not significant was found to have a negative coefficient, indicating that it is inversely related to the independent variable(Y),which is the total labour used per farmer. This means that the higher the cost of inputs such as fertilizer, seeds etc, the less the amount of labour that is employed.

## Recommendation

The persistent nature of farm labour problems and their adverse effect on farm productivity calls for both short and long term measures the long term measure lies in reducing drastically the rate of migration of rural labour force to the urban cities. The short term measure as it were, connotes immediate steps that should be taken to avert the impending danger of reduction in present level of food production due to labour shortage.

## References

- i. Adegeye,A.J.and Dittoh,J.S.(1985), "Essentials of Agricultural Economics pp.55-57.Akinola,A.A. "A quantitative analysis of Demand for hired labour among maize growers in Oyo State of Nigeria: A producer panel approach"Unpublished M.Phil Thesis.Illenbiluan,M.I."The Impact of Hired Labou wages on production of privately-owned agribusiness(farms) with increasing industrialization"an Unpublished B.Sc project.
- ii. John,H.C."Labour Use in the development of small holder agriculture.pp.184-194.
- iii. Jonathan,A.O.(1982) "Economic analysis of labour use in small scale farming in small scale farming in Obokun L.G.A.of Oyo state."B.sc Thesis.pp.1-40.
- iv. Martin Upton(1979) "Farm Management in Africa" pp.127-148.
- v. Nelson,G.S.(1985) "Labour productivity in traditional agriculture: An appraisal of existing literature "B.Sc Thesis.pp.1-20.
- vi. Nwoko(1984): "Farm labour supply and utilization in Southern Cross River States,pp.1-34.
- vii. Okorji,E.C and J.E.Njoku(1985) "Farm labour Problems of small holder cropping systems: A case study of arable farming communities of Anambra State".Paper presented at the 28<sup>th</sup> AnnualConference of the Agricultural Society of Nigeria,Owerri,pp.1-25Okpeafor,I.F.O.(1983), "The Impact of hired labour on the income of rice farmers:A case study of farm settlement,Ekpoma,BendelState"B.Sc Thesis.pp.1-10.
- viii. Kanbur M.G.and Mukerji V."Productivities of farm family labour and hired labour,pp.15-30.